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(54) **Telematics application for implementation in conjuction with a satellite broadcast delivery system**

Telematikanwendung zur Implementierung in Verbindung mit einem Satellitenrundfunk-Ablieferungssystem

Application télématique pour implémentation en conjonction avec un système satellitaire de délivrance par radiodiffusion

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Description

BACKGROUND OF THE INVENTION

a) Field of the Invention

[0001] The present invention relates to the field of two-way telematics applications, where the term telematics refers to the transfer of data to and from a moving vehicle.

b) Discussion of Related Art

[0002] It is well known in the art to implement one-way broadcasting media. An example of such one-way broadcasting media is the one-way system employed by Sirius Satellite Radio of New York, New York.

[0003] Another example can be found in US-A-5 959 577.

[0004] One embodiment of a known one-way broadcasting media is the system 100 shown in Figure 1. In the system 100, two or more satellites (not shown) are positioned in orbit about the Earth so that their antennae can receive and send communication signals 102 and 104. The two or more satellites form part of the satellite-air interface 106. The satellite-air interface 106 also includes terrestrial gap-fillers and intermediate transmitters required to augment the coverage of the digital signal 104 to the customer. The satellite-air interface 106 is connected to a ground station 108 that is connected to a number of information sources 109, such as schematically represented by the blocks 110, 112 labeled General Information, block 114 labeled Intranet, block 116 labeled Internet, block 118 labeled Services, block 120 labeled Web Access and block 122 labeled Profile Database. As explained below, the information sources 109 in combination with the ground station 108 and the satellite-air interface 106 allow customers to receive SDARS (satellite digital audio radio system) broadcasts, initiate and/or cancel their subscription, conduct billing, and modify customer profiles.

[0005] For example, a customer having an appropriate radio receiver 124, receives one-way communication signals 104 from the satellites of the satellite-air interface 106. The radio receiver 124 includes an antenna and SDARS receiver (not shown) similar to elements 214 and 216 of Figure 3 described below. Preferably, the radio receiver 124 will be installed in a vehicle and will be connected to a radio tuner inserted in the console of the vehicle. The radio tuner preferably will have buttons that will allow the user in the vehicle to select either AM, FM or satellite radio. The tuner allows the user to select as many as one hundred different channels of programming available from the satellite radio. In the case of the user selecting satellite radio, the radio receiver 124 checks the signal 104 to see if the user is a subscriber to the satellite radio package. This is possible because the radio receiver 124 has a unique electronic serial number (ESN) assigned to at the time of manufacture. The programs heard on a satellite radio channel will be audio in nature and preferably include music and audio text that identifies the music being heard. The programs may also include audio advertisements. The music, audio text and advertisements are gathered from the storage areas labeled as General Content in boxes 110, 112 shown in Figure 1. The digital signal 104 is one-way in nature in that data flows from the satellite-air interface to the radio receiver 124 and not vice versa. Thus, the user/customer is unable to interact with the system 100 via the satellite-air interface 106. Instead, the customer would need to renew, initiate and/or cancel his or her radio satellite service by gaining access to the system 100 via an intranet site 114, an Internet site 116, a web site 120 or via contacting a services department 118 via telephone. The customer may also conduct billing and modify his or her personal profile through any of these access points as well.

[0006] Regarding the customer's personal profile, the system 100 can include a profile database 122 that contains information regarding each of its customers. The information can include the name, address, billing history of a customer and subscription status of customer.

[0007] One disadvantage of the above-described system is that it does not have a back-channel to allow interaction by the user/customer to the infrastructure of the system 100 via the satellite-air interface. This forces the customer to gain access to the system 100 outside the vehicle which can be inconvenient. In addition, many telematics services will not be available to a user/customer of system 100 without the use of a back-channel.

Summary of the Invention

[0008] According to the invention, there is provided a method of assisting a vehicle user to navigate a vehicle to a desired destination using a vehicular telematics system, the system including an information source means having telematics information, a vehicular telematics device including a global positioning system device attached to a vehicle for providing telematics applications and having a satellite radio receiver for receiving radio signals from a satellite, and a satellite-air interface arranged to supply said telematics information from said information source means to said vehicular telematics device via said satellite; wherein said vehicular telematics device comprises a back-channel and a radio transmitter arranged to send telematics information from said vehicle to said information source means independently of said satellite-air interface to allow communication between said back-channel and said information source means; the method comprising the steps of:

using the global positioning device to provide global positioning information that represents the location of the vehicle;

using the back-channel and transmitter to send from the vehicle to the information source means either

as combined signals or as separate signals a location specific request from the vehicle user and global positioning information from the global positioning system device that represents the location of said vehicle at the time of sending said location specific request;
using the satellite-air interface to send from the information source means to said vehicle a signal representing an answer to said location specific request regarding the location of a certain type of enterprise or a certain type of event, based on said location of said vehicle communicated to the information source means;
characterised in that the method comprises the steps of
after the vehicle user has received said answer then using the back-channel and transmitter to send a signal from the vehicle to the information source means that represents a second request from the vehicle user, said second request being based on said answer and asking for the most direct or best route to reach the location of said nearest one of a certain type enterprise or the best route to avoid the location of said nearest one of a certain type of event based on the vehicle's present position; and
using the satellite-air interface to send from the information source means to said vehicle a signal representing an answer to said second request.

[0009] Providing the answer to the location specific request may comprise determining the nearest one of: a certain type of enterprise; or a certain type of event. Examples of enterprises include a commercial enterprise, such as a private company, or a public enterprise, such as a government department. Examples of events include a traffic-related event, for example a traffic accident or a traffic light failure.

[0010] The invention provides an improved way of providing and answer to a location specific request.

[0011] Also described herein is a vehicular telematics interface device comprising:

a receiver attached to a vehicle to receive radio signals from a satellite that contain telematics information; and
a back-channel that sends telematics information outside of said vehicle independently of said satellite.

[0012] The telematics interface device may comprise a button that when depressed: allows the purchase of an item; or indicates a like or dislike of an item.

[0013] This may include sending an item via radio waves to an audio system, listening to the item on the audio system and activating a button to indicate approval or disapproval of the item. This therefore allows a user of the device to show approval or disapproval of an item overheard on an audio system.

[0014] This provides the advantage of providing customer feedback regarding various products and allowing advertisers and programmers to fine tune their advertisements and programming, respectively.

[0015] Also described herein is a two-way satellite digital audio radio system comprising:

a ground station;
an information source means for providing information connected to said ground station;
a satellite in communication with said ground station;
a vehicle comprising a telematics interface device according to the first aspect of the invention, for providing telematics applications;
a satellite-air interface means for providing communication between said satellite and said telematics interface device; and
wherein said back-channel is in communication with said information source independently of said satellite.

[0016] The information source may comprise any of: a web site; a profile database; recorded music.

[0017] The system may comprise a second interface that allows communication between said back channel and said information source. The second interface may either be a terrestrial-air interface, or a satellite-air interface.

[0018] Also described herein is a method of unlocking a vehicle with a radio receiver that has a unique alpha-numeric identification name associated there with, comprising:

sending a first signal to a satellite digital audio radio system indicating that a vehicle with a receiver with a unique alpha-numeric identification name is locked;
sending a radio signal from said satellite digital audio radio system to said receiver of said vehicle, wherein said radio signal is unique to said unique alpha-numeric identification name; and
unlocking said vehicle upon receipt of said radio signal by said receiver of said vehicle.

[0019] This provides an easy and secure way for a driver to unlock his or her vehicle when the keys are accidentally left in the vehicle.

[0020] Both the above-mentioned method of unlocking a vehicle third and the invention may include the above-mentioned two-way satellite digital audio radio system.

Brief Description of the Drawings

[0021] The present invention, together with attendant objects and advantages, will now be further described, by way of example only, with reference to the accompanying drawings, in which:

Figure 1 schematically illustrates a known one way

broadcasting media;

Figure 2 schematically shows an embodiment of a two-way telematics application according to the present invention;

Figure 3 schematically shows an embodiment of hardware to be used with the two-way telematics application of Figure 2 according to the present invention; and

Figure 4 shows a flow chart that shows a mode of communication flow in the two way telematics application of Figure 2 according to the present invention.

Detailed Description of the Invention

[0022] Referring to the drawings, Figures 2-3 show an embodiment of a system 200 that allows for two-way telematics applications. The system 200 adapts the one-way broadcasting system 100 of Figure 1 and adds appropriate hardware, software, and services to support two-way telematics applications. Comparing systems 100 and 200 reveals several differences. One difference is that a device transformation system 202 is added to the information sources 109 as part of an information infrastructure 209. The device transformation system 202 formats telematics applications to support varying hardware platforms that are out in the field. The device transformation system 202 may be modified such that it can support multiple client-side hardware. For example, telematics applications that are originally designed to be presented on a PC-radio platform with a display could be formatted by the device transformation system 202 to optimize the display so that a telematics service could be rendered on a single line "British-flag" radio. An example of such a PC-radio platform is the platform that includes a color reconfigurable display made and sold under the trade name of ICES (Information Communication Entertainment and Safety) by Visteon of Dearborn, Michigan. It is not expected that the differences between different hardware would be very great (e.g. there would not be a need for a unique one for each radio type, model, feature). Instead, there would be some general categories of devices such as monochrome, color, image-capable, text-only, etc so that the device transformation system 202 can operate on a wide range of hardware devices.

[0023] Another difference between system 200 and system 100 is that system 200 further includes a back channel infrastructure 204 that supports two-way communication back from a vehicular telematics interface device 201 that is contained within the dashed lines of Figure 3. The back channel infrastructure 204 could either be a unique wireless interface owned by the service company or a leveraged existing service. For example, the back channel infrastructure 204 could be accomplished through the use of existing services such as the service sold by Bell South Wireless under the trade name RAM Mobile Data Service or through CDPD (Cellular Digital Pack Data) within a cellular phone service. In operation, the back channel infrastructure may take data that has come from the client and route it to the profile database 122 to confirm the customer's data request against his currently enabled services.

[0024] A third difference between the system 200 and the system 100 is that the system 200 includes a terrestrial air interface 208 that represents the actual air interface between the mobile client and the information infrastructure 209. It is expected that this communication link will be highly asymmetrical in that the amount of data moving from the client to the back-channel 204 and to the information infrastructure 209 will be very small and represent the requests for telematics services and/or applications. This is consistent with current Internet data flow from the user's perspective. Although the terrestrial air interface 208 is indicated as terrestrial, it is not limited to terrestrial-only and could be realized via a satellite back-channel, should one be a viable solution.

[0025] A fourth difference between systems 100 and 200 is that the receiver 124 is modified so as to be the above-mentioned vehicular telematics device 201 which includes an antenna 214 and an SDARS receiver 216. As shown in Figure 3, the SDARS receiver 216 is connected with a receiver device partitioning system 212 that allows the customer to both receive data and broadcast information while interacting with the infrastructure to request specific data.

[0026] An embodiment of the vehicular telematics device 201 and the receiver device partitioning system 212 is shown in Figure 3. This diagram represents the physical hardware that must be implemented within the customer's mobile vehicle to enable the telematics features described in this application. As shown in Figure 3, a satellite services comprises the ground station 108 that transmits an uplink signal 250 to a satellite 252, which then broadcasts a satellite signal 254 back to the ground. The satellite service thus delivers data on the satellite signal 254 at 2.3 GHz to the antenna 214 of the vehicular telematics device 201. The data is then delivered to an SDARS receiver or downlink processor 216 that decodes the data. It should be noted that there are many well-known embodiments for the downlink processor 216. The downlink processor 216 generates left and right audio output signals 218 for use in an audio system 240 of a telematics interface device 210. The signal 218 can be either analog or digital. The downlink processor 216 receives command and control signals 220 and 222 from the receiver device partitioning system 212 and the telematics interface device 210 of the vehicular telematics device 201, respectively. In addition, the downlink processor 216 generates an output signal 224 that includes raw data stream (~ 4 Mbps) which also contains the additional telematics data which must be processed separately by the receiver device partitioning system 212 to provide this data to the user. As described above, the

downlink processor 216 provides the primary SDARS functionality to the user in a one-way manner.

[0027] The receiver device partitioning system 212 extracts the telematics-specific data from the ~4 Mbps bit stream of output signal 224. The functionality of receiver device partitioning system 212 is broken down into two sub-function systems: a data channel decoder 226 and a data service decoder 228. The data channel decoder 226 conducts channel decoding on the data channels. The reasoning behind this is that data, being far more sensitive to errors that can corrupt the final result, must be encoded (and therefore decoded) with a much more powerful scheme than audio signals. A combination of channel-decoding and forward error correction optimizes the quality of the transfer of data while reducing the overhead.

[0028] The data services decoder 228 takes the raw, decoded telematics data and converts it to a format that is functionally usable for the telematics interface device 210. For example, if the raw data represents an image for display, the data services decoder 228 applies the appropriate source decoding algorithms to take the data and presents it to the telematics interface device 210 in an image file format for display.

[0029] As shown in Figure 3, the data services decoder 228 generates a signal 230 that is delivered to a data cache 232 in the telematics interface device 210. The data cache 232 receives the signal 230 in a streaming mode (or in the background while using another function). The telematics interface device 210 also includes a web-access system 234, such as a micro-browser or a wireless application protocol feature, to engage the telematics options described below. The telematics interface device 210 can also include a global positioning system 236 for location specific requests, and a voice activation system 238 to improve the interface between the customer and the service. The telematics interface device 210 further includes a back-channel 206 that supports two-way communication back from the vehicular telematics device 201 to the back-channel infrastructure 204.

[0030] The telematics interface device 210 represents the telematics-enabled device in the vehicle with which a customer interacts. At the lowest level, this could be a radio or a remote human machine interface bezel providing buttons and display 242. The telematics interface device 210 can provide both conventional audio functionality (radio controls, volume control, channel choice, presets) and new telematics-enabled functions. Examples of products that could accomplish this include the products made and sold by Visteon of Dearborn, Michigan under the trade names of ICES mentioned previously or VNR, also known as Visteon Navigation Radio. These products provide the two critical functions, reconfigurable displays and buttons, and a communication back-channel.

[0031] With the above described architecture in mind, an example of the communication flow starting from a customer request for a telematics application to final delivery is shown in Figure 4. In this example, the customer activates the SDARS system 200 by turning on the power of the vehicular telematics device 201 (step 300). Next, the customer requests a particular telematics application (step 302) by selecting the telematics application that is displayed on a menu of the telematics interface device 210. Selection is accomplished by using buttons, mouse ball, pen or other well-known selection devices. After the particular telematics application is selected, data is sent via the back-channel infrastructure 204 to the information sources 110,112,114,116,118,120 and 122 described previously (step 304). The data from the back-channel infrastructure 204 is sent to the profile database 122 that confirms whether or not the customer's service subscription is up-to-date (step 306). Assuming that the profile database 122 confirms that the customer is currently a subscriber, then the data request by the customer is serviced by the services information source 118, the Intranet information source 114 and the Internet information source 116 (step 308), depending on the telematics application selected by the customer. After the information sources 114, 116 and 118 are contacted and the desired data is retrieved, that data is encoded with the customer's unique ESN (electronic serial number) by the profile database 122 (step 310). Next, the encoded data is sent to the device transformation system 202 (step 312) which formats the encoded data for use with the customer's telematics interface device 210. As shown by step 314, the formatted and encoded data is then transmitted over the satellite-air interface 106 to the antenna 214 of the vehicular telematics device 201. The data is then delivered to the downlink processor 216 that decodes the data and passes the data bit stream of the output signal 224 to the receiver device partitioning system 212 (step 316). The data channel decoder 226 of the receiver device partitioning (RDP) system 212 then decodes the data channel of output signal 224 (step 318). Next, the data service decoder 228 decodes the data service (step 320). The data is then stored in the data cache 232 (step 322) and then the data is sent from the data cache 232 to the display 242 of the telematics interface device 210 (step 324).

[0032] With the above process of Figure 4 in mind, there are at least three telematics applications that could be implemented via the architecture of system 200. In one telematics application, the display 242 of the telematics interface device 210 can include a "Buy Button" 244. In operation, a customer listens to an SDARS audio source. If the customer desires to purchase a song or album that he or she is presently listening to on the SDARS audio source, then the customer activates the "Buy Button" 244. Activation of the "Buy Button" will result in a signal 245 being generated in back-channel 206 that is sent to the antenna 246 and to the information infrastructure 209. The signal 245 initiates a sales transaction and will derive credit card information and shipping information from the customer profile database 122 and results in the customer placing a purchase order for that

particular song or album. In an alternative embodiment, pressing the "Buy Button" can result in a formatted version of the song or album, such as MP3, being sent to the customer or a third party designated by the customer. The "Buy Button" 244 also can be used to purchase a product being promoted in an advertisement that is being currently listened to by a user of the SDARS audio system 240. In an alternative embodiment, the "Buy Button" 244 can be altered so that activating the button allows the customer to show his or her approval or disapproval of a song or album being currently listened to on the SDARS audio system 240 to improve programming content. Note that in each of the embodiments described above, activation of the "Buy Button" 244 results in data flowing from the back-channel 206 to a radio tower 246 or the like which in turn sends the data to the information infrastructure 209 of the system 200. The data is then sent to the services department or information source 118 where the ordering of the song or album or the approval/disapproval vote is processed. The data could also be sent to the profile database 122 that records the order or vote.

[0033] A second possible telematics application that could be implemented via system 200 is to allow a customer access to his or her car when locked out of the car. This application takes advantage of the fact that each SDAR receiver 216 has a unique alpha-numeric name assigned to it known as an ESN (Electronic Serial Number) and so it is possible to access them separately. If the customer is locked out of his or her car, then the customer can use a touch-tone phone or a web interface to gain access to the information infrastructure 209 by entering or providing a customer alpha-numeric name or identification number that indicates that the customer is currently enrolled for the system 200. Once the customer gains access to the system 200,he or she informs the system 200 that he or she is locked out of his or her vehicle. Next, the system 200, via a person or automatic answering system, will inform the customer that the request is being processed and that the vehicle will be unlocked within a certain period of time. The system 200 then sends a door-unlock command that is unique to the ESN of the SDAR receiver 216 of the locked vehicle to the vehicular telematics device 201 via satellite-air interface 106 which then passes the command to the customer's vehicle's multiplex network (not shown). Note that if the customer does not gain access to the information infrastructure 209 within a certain time period, dependent on specific vehicle shutdown and wake-up capabilities, then it will not be possible to unlock the vehicle via the vehicular telematics device 201.

[0034] A third possible telematics application is to allow the customer in his or her vehicle to perform location specific service applications. Two examples of location specific service applications are determining where the nearest refuelling station with respect to the vehicle is located or determining where the nearest traffic accident or traffic light failure is located with respect to the vehicle. In this embodiment, the global positioning system 236 allows the customer to request information regarding the nearest one of a certain type of commercial/public enterprise or event, such as the nearest refuelling station, post office, traffic light failure or traffic accident. The request and the global positioning information are then sent in a combined signal or separate signals via the back channel 204 to the information infrastructure 209 via the terrestrial antenna 246. Since the data sent to the information infrastructure 209 includes both the request and the global positioning system location of the vehicle from the global positioning system 236, the infrastructure 209 interrogates its global position databases located at the general content 110, 112 or Internet 116 databases and sends a location-specific answer to the telematics interface device 210 via the satellite-air interface 106. Based on the location-specific answer, the customer can send another request to the infrastructure 209 via the back-channel 204 as to the most direct or best route to reach the location of the nearest commercial/public enterprise or the best route to avoid the location of the nearest event based on the vehicle's present position. The system 200 then sends an answer via the satellite-air interface 106.

[0035] The foregoing description is provided to illustrate the invention, and is not to be construed as a limitation. Numerous additions, substitutions and other changes can be made to the invention without departing from its scope as set forth in the appended claims.

Claims

1. A method of assisting a vehicle user to navigate a vehicle to a desired destination using a vehicular telematics system, the system including an information source means (209) having telematics information (110,112,114,116,118), a vehicular telematics device (201) including a global positioning system device (236) attached to a vehicle for providing telematics applications and having a satellite radio receiver (214,216) for receiving radio signals (254) from a satellite (252), and a satellite-air interface arranged to supply said telematics information from said information source means (209) to said vehicular telematics device (201) via said satellite (252); wherein said vehicular telematics device (201) comprises a back-channel (206) and a radio transmitter arranged to send telematics information from said vehicle to said information source means (209) independently of said satellite-air interface to allow communication between said back-channel (206) and said information source means (209); the method comprising the steps of:

using the global positioning device (236) to provide global positioning information that represents the location of the vehicle;
using the back-channel (206) and transmitter to send from the vehicle to the information source

means (209) either as combined signals or as separate signals a location specific request from the vehicle user and global positioning information from the global positioning system device (236) that represents the location of said vehicle at the time of sending said location specific request;
using the satellite-air interface to send from the information source means (209) to said vehicle a signal representing an answer to said location specific request regarding the location of a certain type of enterprise or a certain type of event, based on said location of said vehicle communicated to the information source means (209);
characterised in that the method comprises the steps of
after the vehicle user has received said answer then using the back-channel (206) and transmitter to send a signal from the vehicle to the information source means (209) that represents a second request from the vehicle user, said second request being based on said answer and asking for the most direct or best route to reach the location of said nearest one of a certain type enterprise or the best route to avoid the location of said nearest one of a certain type of event based on the vehicle's present position; and
using the satellite-air interface to send from the information source means (209) to said vehicle a signal representing an answer to said second request.

2. A method as claimed in Claim 1, wherein said certain type of enterprise is a refuelling station or post office.

3. A method as claimed in Claim 1, wherein said certain type of event is a traffic light failure or a traffic accident.

Patentansprüche

1. Verfahren zur Unterstützung eines Fahrzeugbenutzers bei der Navigation eines Fahrzeuges bis zu einem gewünschten Ziel unter Einsatz eines Fahrzeug-Telematiksystems, welches System Informationsquellenmittel (209) beinhaltet, mit Telematikinformationen (110, 112, 114, 116, 118), einer Fahrzeug-Telematikvorrichtung (201) mit einer mit einem Fahrzeug verbundenen globalen Positionierungssystem-Vorrichtung (236) zur Stellung von Telematikanwendungen, und mit einem Satelliten-Rundfunkempfänger (214, 216) zum Empfang von Rundfunksignalen (254) von einem Satelliten (252), und einer Satelliten-Luft-Schnittstelle, welche ausgebildet ist, besagte Telematikinformationen von besagten Informationsquellenmitteln (209) über besagten Satelliten (252) an besagte Fahrzeug-Telematikvorrichtung (201) zu leiten; worin besagte Fahrzeug-Telematikvorrichtung (201) einen Rückkanal (206) und einen Funksender beinhaltet, welcher ausgelegt ist, Telematikinformationen von besagtem Fahrzeug an besagte Informationsquellenmittel (209) zu senden, unabhängig von der besagten Satelliten-Luft-Schnittstelle, um eine Kommunikation zwischen besagtem Rückkanal (206) und besagten Informationsquellenmitteln (209) zu ermöglichen;
wobei das Verfahren die folgenden Schritte beinhaltet:

Verwenden der globalen Positionierungsvorrichtung (236) zur Abgase von globalen Positionierungsinformationen, welche den Standort des Fahrzeuges darstellen;
Verwenden des Rückkanals (206) und des Senders zur Sendung, vom Fahrzeug an die Informationsquellenmittel (209), entweder als Kombinationssignale oder als getrennte Signale, einer vom Fahrzeugbenutzer ausgehenden ortsabhängigen Anfrage sowie von globalen Positionsinformationen von der globalen Positionierungssystemvorrichtung (236), welche den Standort des besagten Fahrzeuges zu dem Zeitpunkt der Aussendung einer ortsabhängigen Anfrage darstellen;
Verwenden der Satelliten-Luft-Schnittstelle zur Sendung, von den Informationsquellenmitteln (209) an besagtes Fahrzeug, eines Signals, welches eine Antwort auf die besagte ortsabhängige Anfrage in bezug auf den Ort eines bestimmten Typs von Unternehmen oder eines bestimmten Typs von Ereignis darstellt, ausgehend von besagtem Standort des besagten Fahrzeuges, wie er den Informationsquellenmitteln (209) mitgeteilt worden ist;
dadurch gekennzeichnet, daß das Verfahren die folgenden Schritte beinhaltet:
nachdem der Fahrzeugbenutzer besagte Antwort erhalten hat, Verwenden des Rückkanals (206) und des Senders zur Sendung eines Signals vom Fahrzeug an die Informationsquellenmittel (209), welches eine zweite Anfrage vom Fahrzeugbenutzer darstellt, wobei besagte zweite Anfrage auf besagter Antwort basiert und nach dem direktesten oder besten Weg fragt, um den Ort des besagten nächsten eines bestimmten Typs von.Unternehmen zu erreichen, oder nach dem besten Weg, den Ort des besagten nächsten eines bestimmten Typs von Ereignis zu umgehen, ausgehend von der gegenwärtigen Position des Fahrzeuges; und
Verwenden der Satelliten-Luft-Schnittstelle zur Sendung eines Signals von den Informationsquellenmitteln (209) an das Fahrzeug, welches eine Antwort auf die besagte zweite Anfrage darstellt.

2. Verfahren nach Anspruch 1, worin besagter bestimmter Typ von Unternehmen eine Tankstelle oder ein Postamt ist.

3. Verfahren nach Anspruch 1, worin besagter bestimmter Typ von Ereignis eine ausgefallene Ampel oder ein Verkehrsunfall ist.

Revendications

1. Procédé d'assistance à un utilisateur de véhicule pour la navigation d'un véhicule jusqu'à une destination souhaitée en utilisant un système télématique pour véhicule, le système comprenant un moyen de source d'informations (209) détenant des informations télématiques (110, 112, 114, 116, 118), un dispositif télématique pour véhicule (201) comprenant un dispositif de système de positionnement mondial (236) fixé sur le véhicule pour fournir des applications télématiques et comportant un récepteur radio pour satellite (214, 216) destiné à recevoir des signaux radio (254) provenant d'un satellite (252) et une interface satellite-air conçue pour fournir lesdites informations télématiques provenant dudit moyen de source d'informations (209) audit dispositif télématique pour véhicule (201) par l'intermédiaire dudit satellite (252), où ledit dispositif télématique pour véhicule (201) comprend un canal de retour (206) et un émetteur radio agencés pour envoyer des informations télématiques depuis ledit véhicule audit moyen de source d'informations (209) indépendamment de ladite interface satellite-air afin de permettre une communication entre ledit canal de retour (206) et ledit moyen de source d'informations (209), le procédé comprenant les étapes consistant à :

utiliser le dispositif de positionnement mondial (236) pour fournir les informations de positionnement mondial qui représentent l'emplacement du véhicule,
utiliser le canal de retour (206) et l'émetteur pour envoyer du véhicule au moyen de source d'informations (209), soit sous la forme de signaux combinés, soit sous la forme de signaux séparés, une demande spécifique à l'emplacement depuis l'utilisateur du véhicule et les informations de positionnement mondial depuis le dispositif de positionnement mondial (236) qui représentent l'emplacement dudit véhicule au moment de l'envoi de ladite demande spécifique à l'emplacement,
utiliser l'interface satellite-air pour envoyer du moyen de source d'informations (209) audit véhicule un signal représentant une réponse à ladite demande spécifique à l'emplacement concernant l'emplacement d'un certain type d'entreprise ou d'un certain type d'événement, sur la base dudit emplacement dudit véhicule communiqué au moyen de source d'informations (209),
caractérisé en ce que le procédé comprend les étapes consistant à :
après que l'utilisateur du véhicule a reçu ladite réponse, utiliser alors le canal de retour (206) et l'émetteur pour envoyer un signal du véhicule au moyen de source d'informations (209) qui représentent une deuxième demande provenant de l'utilisateur du véhicule, ladite deuxième demande étant fondée sur ladite réponse et demandant l'itinéraire le plus direct ou le meilleur itinéraire pour atteindre l'emplacement de ladite entreprise la plus proche parmi un certain type d'entreprise ou le meilleur itinéraire pour éviter l'emplacement dudit événement le plus proche d'un certain type d'événement sur la base de la position actuelle du véhicule, et
utiliser l'interface satellite-air pour envoyer depuis le moyen de source d'informations (209) audit véhicule un signal représentant une réponse à ladite deuxième demande.

2. Procédé selon la revendication 1, dans lequel ledit certain type d'entreprise est une station-service ou un bureau de poste.

3. Procédé selon la revendication 1, dans lequel ledit certain type d'événement est une panne de feu de signalisation ou un accident de la circulation.

FIG.1
PRIOR ART

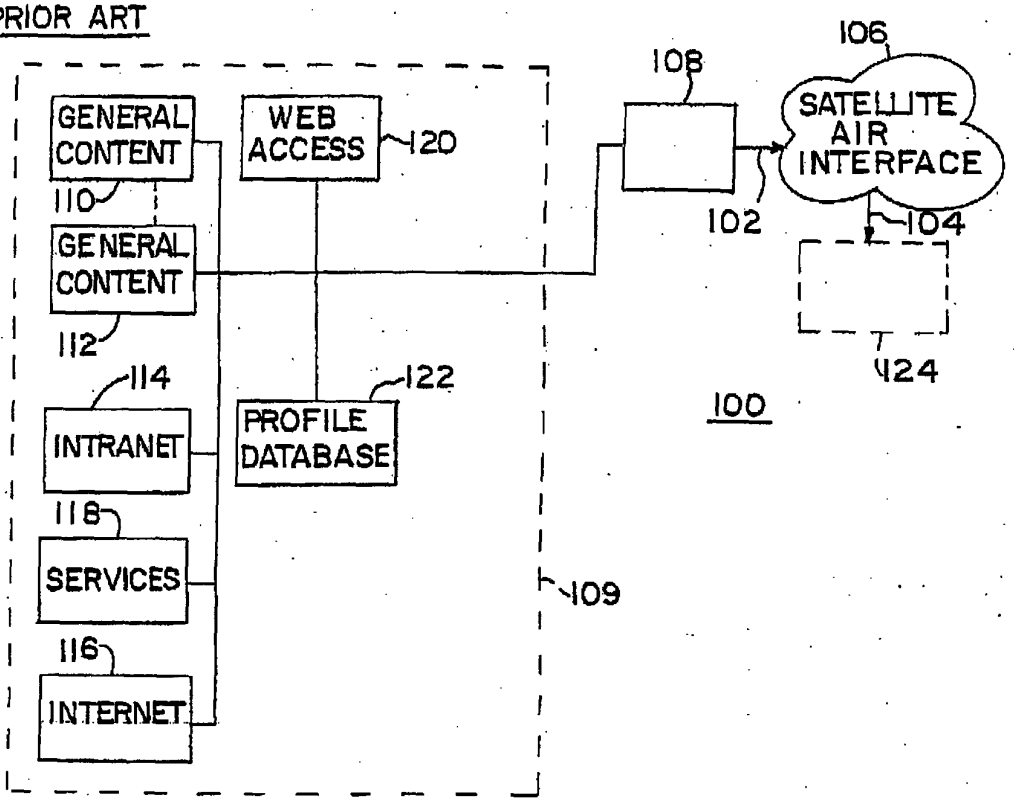


FIG.2

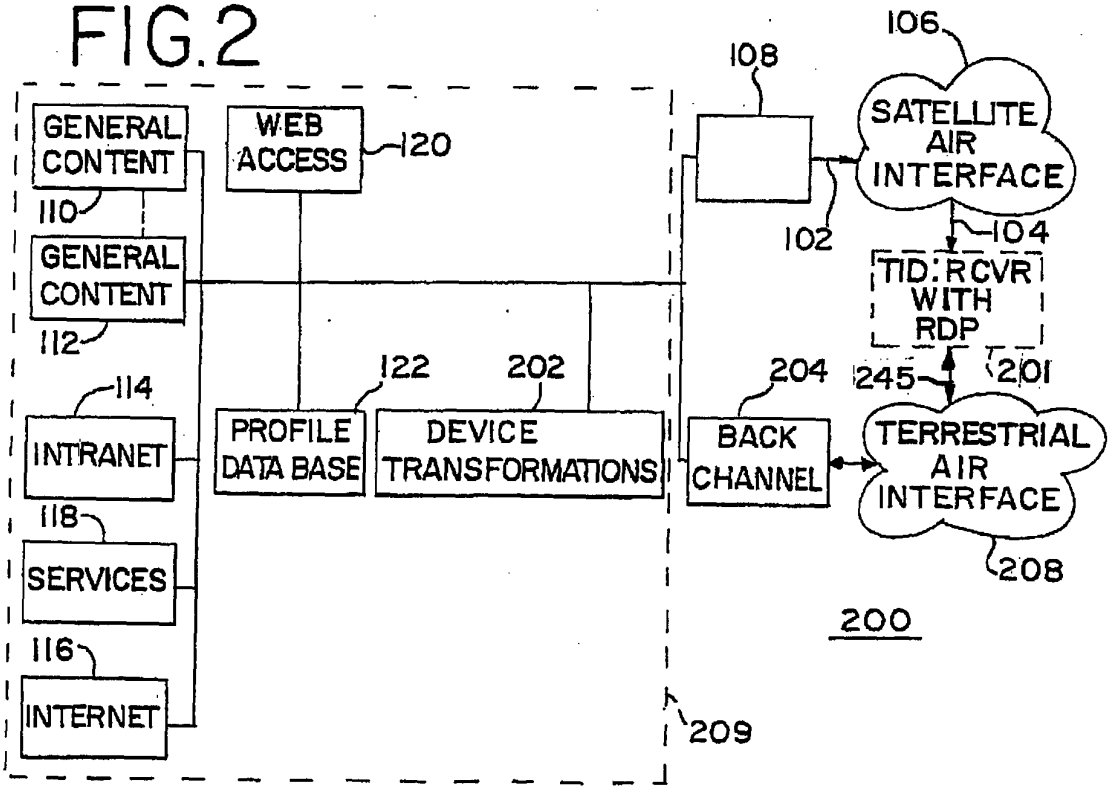


FIG. 3

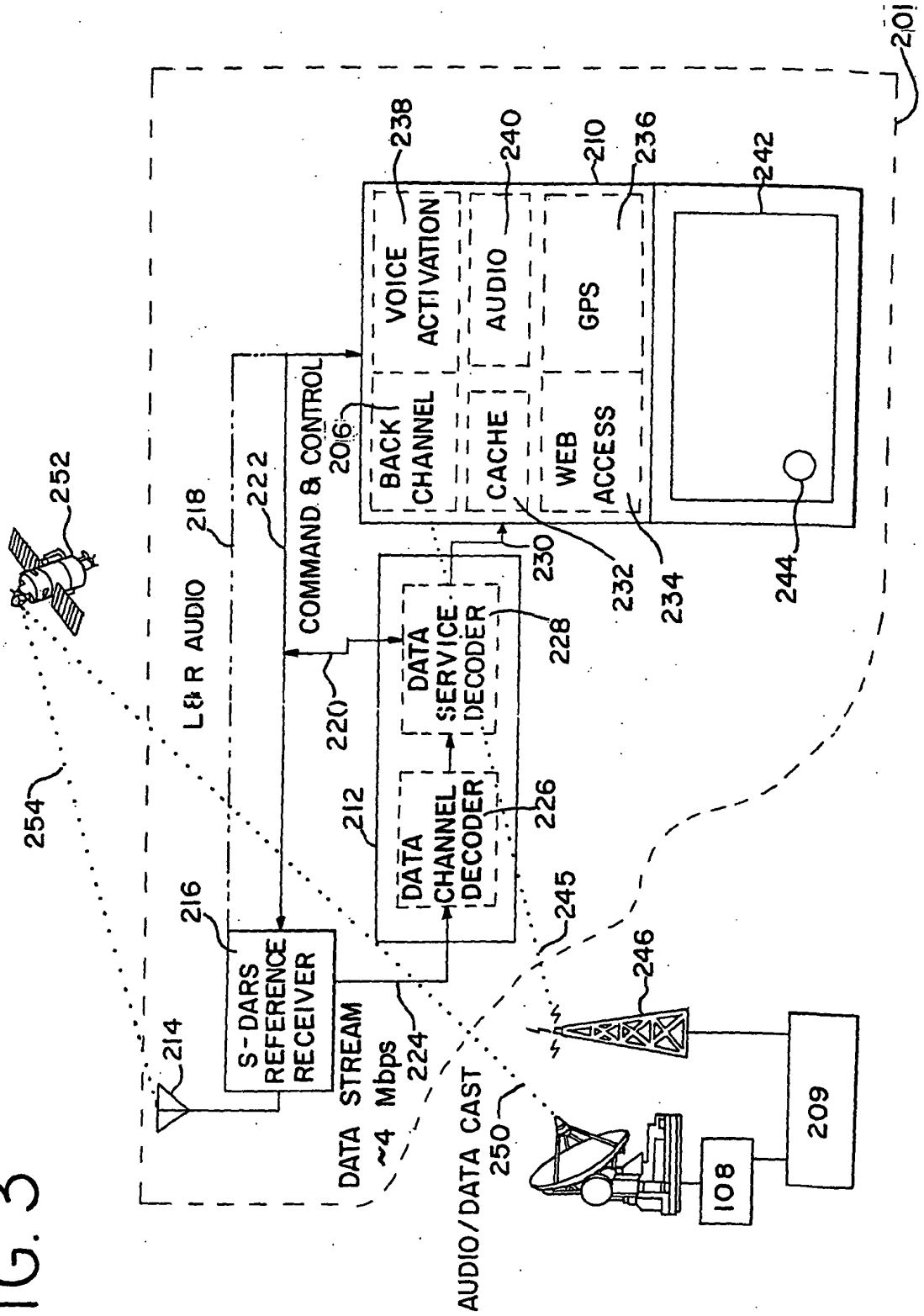
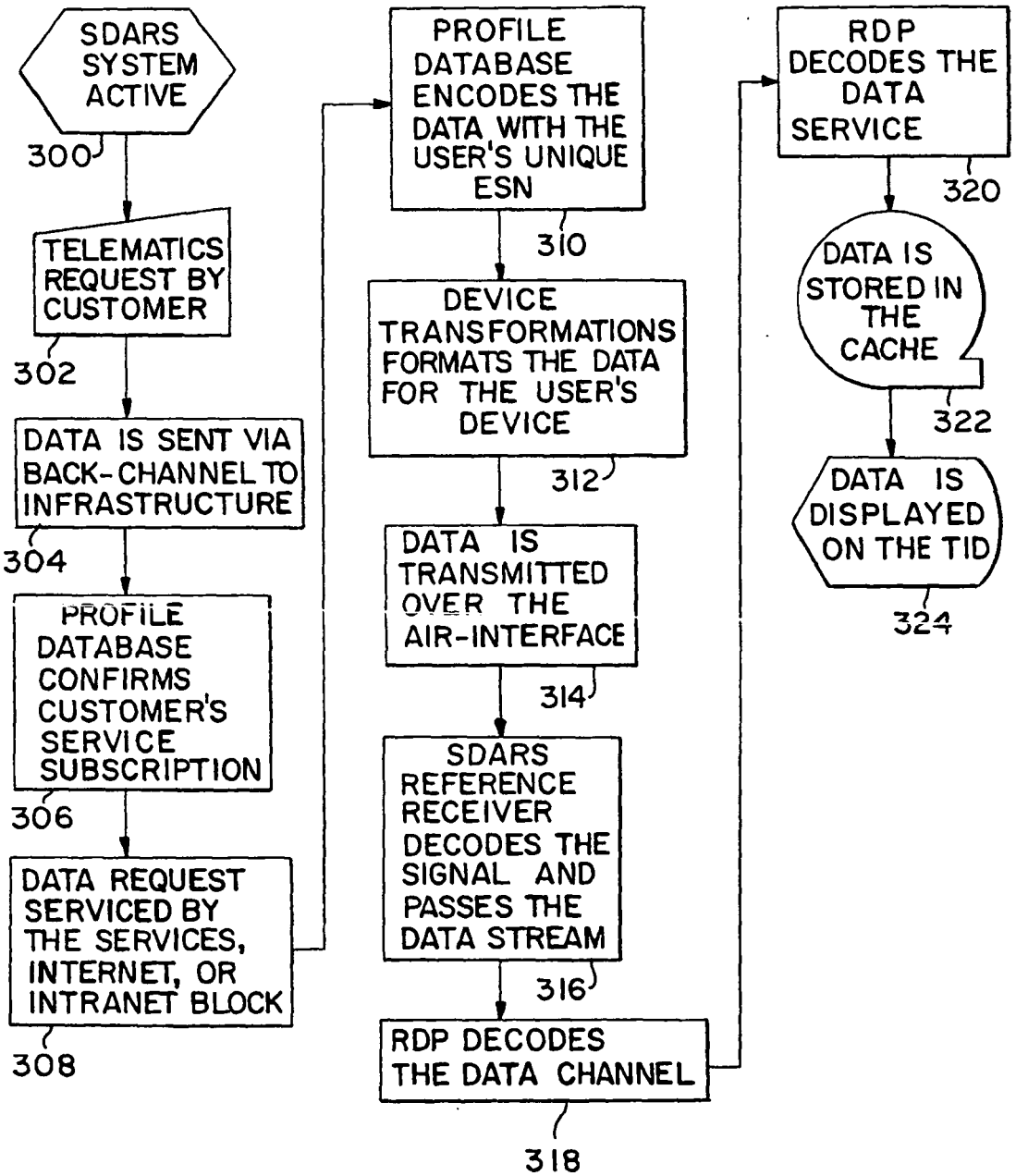

201
252
254
L & R AUDIO
218
222
COMMAND & CONTROL
206
BACK CHANNEL
VOICE ACTIVATION
238
CACHE
AUDIO
240
WEB ACCESS
GPS
210
236
242
230
232
234
244
DATA SERVICE DECODER
228
220
212
DATA CHANNEL DECODER
226
216
S-DARS REFERENCE RECEIVER
214
DATA STREAM ~4 Mbps
224
245
246
AUDIO/DATA CAST
250
209
108

FIG.4


SDARS SYSTEM ACTIVE
300
TELEMATICS REQUEST BY CUSTOMER
302
DATA IS SENT VIA BACK-CHANNEL TO INFRASTRUCTURE
304
PROFILE DATABASE CONFIRMS CUSTOMER'S SERVICE SUBSCRIPTION
306
DATA REQUEST SERVICED BY THE SERVICES, INTERNET, OR INTRANET BLOCK
308
PROFILE DATABASE ENCODES THE DATA WITH THE USER'S UNIQUE ESN
310
DEVICE TRANSFORMATIONS FORMATS THE DATA FOR THE USER'S DEVICE
312
DATA IS TRANSMITTED OVER THE AIR-INTERFACE
314
SDARS REFERENCE RECEIVER DECODES THE SIGNAL AND PASSES THE DATA STREAM
316
RDP DECODES THE DATA CHANNEL
318
RDP DECODES THE DATA SERVICE
320
DATA IS STORED IN THE CACHE
322
DATA IS DISPLAYED ON THE TID
324

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- US 5959577 A **[0003]**